

FOR ESIGHT

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Report Gauges Progress, Public Opinion on Goals for Future

By Michal Smith-Mello

The Kentucky Long-Term Policy Research Center has released the third in its Visioning Kentucky's Future series of reports, which provides a biennial assessment of the state's progress on 26 long-term goals for the future.

Measures and Milestones 2000 presents data, some of which has never been reported before, that gauge progress on each of the 26 long-term goals and, in most cases, compare Kentucky's performance to that of the nation, the region, or surrounding states. New data on such topics as recycling, volunteer activity, personal safety, housing, Internet access, historic properties, and other topics were collected from participating state agencies and in general population surveys conducted by the University of Kentucky (UK) Survey Research Center in 1998 and 1999.

The report also includes an analysis of the results of a 1999 public opinion survey. This survey, which was also conducted by the UK Survey Research Center, asked citizens to rank the goals for the Commonwealth by order of importance and to assess the state's progress on each goal. Specifically, respondents to the survey were asked whether the state is making progress, standing still, or losing ground on each goal.

As in 1998, an inverse correlation was found between the importance citizens assign to a goal and the progress they believe the state has made. The more important the goal, the less progress citizens tend to think the state has made, the less important the goal, the more progress they perceive.

While education is the exception, health care is a case in point. Concerns about the cost and accessibility of health care have elevated its importance to citizens over the past two years. In 1998, the public rated accessible health care as the third most important goal. They now rank Goal 4—*All Kentuckians will have access to affordable, high-quality, and comprehensive health care that stresses the importance of preventive care*—as the most important goal to the state's future, but they remain discouraged by what they see as a lack

of progress on the goal. As in 1998, results of the 2000 survey show that, by a wide margin, the public sees the least evidence of progress toward realization of the goal of universal health care. On both the 1998 and the 2000 survey, this goal ranked last on the progress scale.

Goal 7—*Kentucky will achieve an education system of lifelong learning that exemplifies excellence*—was a close second as the most important goal to the state's future. In 1998, citizens ranked it as the most important goal. Unlike health care, however, a majority of citizens continue to believe that the state is making progress on this goal. Moreover, the percentage of respondents who saw progress increased between 1998 and 2000. Overall, the goal of an excellent system of lifelong learning also moved the farthest upward on the progress scale, jumping from 14th in 1998 to 8th in 2000.

Citizens ranked Goal 1—*Kentucky communities will be safe and caring places that enable all citizens to lead productive fulfilling lives*—3rd overall in importance and 12th overall in terms of progress. In 1998, this goal was ranked 2nd overall in importance but few saw progress

toward the goal. It then ranked 17th.

Citizens reported seeing the most progress on efforts to protect the state's environment. Goal 21—*Kentucky will protect and enhance its environment through the responsible stewardship of its natural resources and the preservation of its scenic beauty*—garnered the most points for progress in our analysis. In 1998, progress toward this environmental

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TABLE 1
Most Important 5 Goals (out of 26)
with rank by Perceived Progress, 2000

	Rank by Progress
1. Kentuckians will have access to affordable, high-quality, and comprehensive health care that stresses the importance of preventive care.	26
2. Kentuckians will have an education system of lifelong learning that exemplifies excellence.	8
3. Kentucky communities will be safe and caring places that enable all citizens to lead productive, fulfilling lives.	12
4. Kentucky's children will have safe, stable learning environments.	20
5. Kentucky will end poverty and alleviate its adverse consequences and debilitating effects.	24

goal ranked sixth. Arts opportunities in the state and benefits from participation in an integrated global economy ranked second and third, respectively, in terms of progress, while waste reduction through recycling ranked fourth.

The inverse correlation between assigned importance and perceived progress was again evident. While the public sees high rates of progress on opportunities to participate in and appreciate the arts, the goal was rated the least important among the 26 long-term goals. Similarly, citizens ranked environmental protection 18th in importance, recycling 21st, and beneficial participation in the global economy 24th.

FORESIGHT

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TABLE 2
Most Progressed 5 Goals (out of 26)
with Rank by Importance, 2000

	Rank by Importance
1. Kentucky will protect and enhance its environment through the responsible stewardship of its natural resources and the preservation of its scenic beauty.	18
2. Kentuckians will have opportunities to appreciate, participate in, and contribute to the arts and humanities and historic preservation.	26
3. Kentucky will benefit from participation in an integrated global economy.	24
4. Individuals, communities, and businesses will use resources wisely and reduce waste through recycling.	21
5. Kentuckians will promote partnerships among parents, schools, and communities to enhance the social and academic development of children.	12

Some of the changes in public opinion between 1998 and 2000 are noteworthy. For example, overall assessments of progress dropped sharply for five goals: beneficial participation in the global economy, civic pride, a fair tax and regulatory structure, a state-of-the-art technology infrastructure, and partnerships to promote education. Goal 5—*Kentucky communities will have high levels of trust and civic pride realized from broad citizen participation in their continuous development*—fell the farthest in terms of progress, dropping from 10th in 1998 to 19th in the 2000 assessment.

Launched in 1994, the Visioning Kentucky's Future project sought broad citizen input into the development of a vision for the future of the state. A vision statement was shaped based upon findings from 15 public forums held around the state and numerous mailings that sought public comment on various drafts. From the vision statement, the Center's Board of Directors developed a series of goals that were subject to review by agencies throughout state government. Measures or benchmarks used to assess progress were subjected to similar levels of public scrutiny and evaluation in mailings and in discussions at the Center's 1995 conference.

The 2000 public opinion survey was conducted by the UK Survey Research Center in the summer of 1999. Surveys were mailed in June 1999, and the survey was closed September 1, 1999. A total of 566 eligible responses were received.

The values of overall rankings of goals were generated by assigning numerical values to the responses given. For each goal that citizens said the state is "making progress," a +1 was assigned; for those goals that citizens said the state is "losing ground," a value of -1 was assigned. No value was assigned to "standing still" responses. To evaluate overall importance, the goals that citizens ranked as most important were assigned a value of 3 points while the second- and third-ranked goals were assigned values of 2 points and 1 point, respectively.

Copies of the report are available from the Center free of charge while supplies last. To obtain your copy, write, phone, fax, or e-mail the Center at the appropriate address shown on this page. The full report is also available electronically at the Center's web site: www.kltprc.net.

Data Foretell Most Vulnerable Tobacco Counties

“While there are many possible outcomes over the next decade for Kentucky’s burley quota ... factors will likely depress Kentucky’s basic burley tobacco quota by around 40 percent over the next ten years ...” — *The Future of Burley Tobacco*, 1994

“U.S. cuts burley quota 45 percent” — February 2, 2000, headline from *The Courier-Journal*

By Michael T. Childress

In 1994, the Kentucky Long-Term Policy Research Center published a report titled *The Future of Burley Tobacco* in which several counties were identified as being at especially high risk in the event of a significant decline in the burley tobacco quota. The future of these tobacco-dependent counties in Kentucky takes on renewed importance in light of the recently announced 45 percent cut in the burley quota for this year and recent discussions about how the tobacco settlement funds should be distributed.

Kentucky farmers have absorbed huge decreases in the amount of tobacco they can grow: a 9 percent decrease in 1998, a 28.8 percent drop in 1999, and a 45 percent decline this year. As a result, farmers are growing about one third of the burley they were growing just three years ago. Fortunately for Kentucky’s agricultural communities, it appears that a significant portion of the tobacco settlement funds will be



of their relatively high economic dependence on tobacco (over 5 percent of the county’s total personal income) and their relatively high poverty rates (over 25 percent). Since this study was done nearly six years ago, we decided to update the poverty and tobacco income data and employ a slightly different method to determine which counties are likely to be most affected by a reduction in the burley quota. This analysis can help determine where to focus agricultural development initiatives.

Method

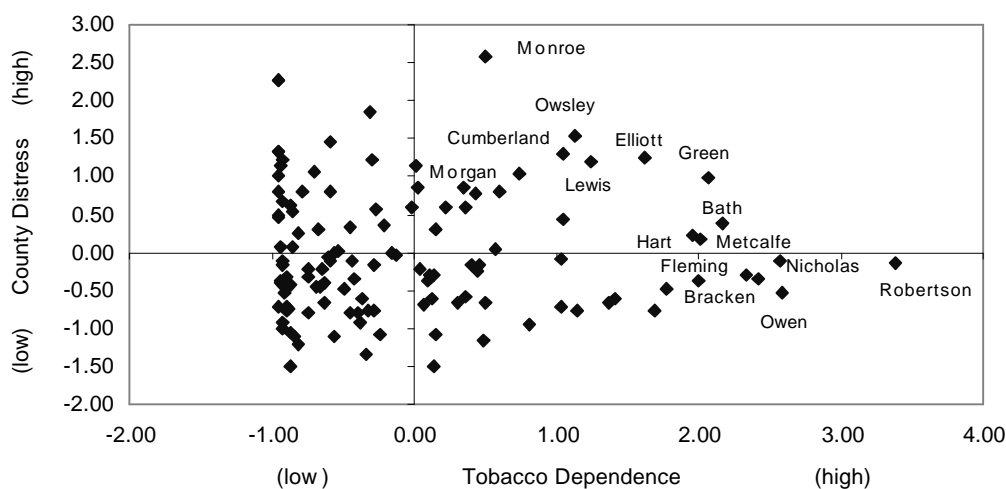
Our method attempts to address two questions: which counties are the most tobacco dependent and which counties are already in distress? By examining these two factors we can identify those counties that will likely be least able to cope successfully with future declines in the burley quota.

We define “dependence” as tobacco’s portion of the

county’s total income. To get this number we divided tobacco’s value² by total personal income.³ The average value for all 120 counties is 2.4 percent.⁴ Robertson County has the highest value at 11.2 percent, followed by Owen (9.1), Nicholas (9.1), Bracken (8.7), and Fleming (8.5).

The county poverty rate⁵ and unemployment rate⁶ are used to determine whether a county is in “distress.” Kentucky’s poverty rate is estimated at 17.9 percent,⁷ with the five highest county poverty rates found in Owsley (46.6 percent), McCreary (41.4), Lee (39.1), Wolfe (38.9), and Magoffin (38)

FIGURE 1
Tobacco Dependence and County Distress



used to cushion the blow of declining quotas through a series of initiatives designed to bolster Kentucky’s rural areas.

We identified 15 counties in 1994 that were at potentially high risk from a significant decline in the burley tobacco quota.¹ These counties were considered to be at risk because

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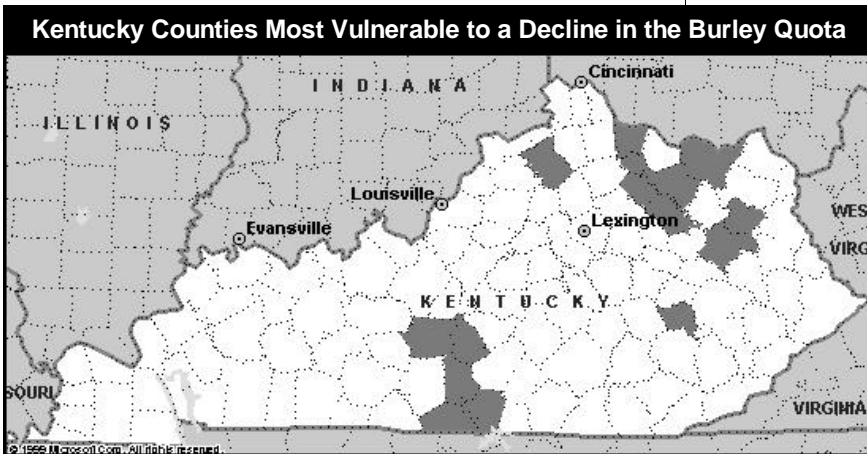
Counties. The average unemployment rate for Kentucky was 3.7 percent in November 1999, with the five highest rates found in Monroe (16.2), Letcher (13.1), Harlan (12.1), Green (9.9), and Taylor (9.8) Counties. When we account for the poverty rates and unemployment rates, the five most at-risk counties are, in order, Monroe, Letcher, Harlan, Magoffin, and Owsley.⁸

Results

There are a number of ways one might combine these two scales to identify the counties least able to handle a large decline in the burley quota. For example, one could focus only on those counties with above-average dependence and above-average distress. However, this would not include a county that is highly dependent on tobacco but just below average on the distress scale, such as Robertson County.

TABLE 1
Fifteen Counties Most Vulnerable
to a Large Decline in the Burley Quota

County	Tobacco as % of Total Income	Poverty Rate 1995	Unemployment Rate (Nov. '99)
Kentucky	1.0%	17.9%	3.7%
Robertson	11.2%	20.1%	4.3%
Monroe	3.8%	23.7%	16.2%
Green	7.8%	19.0%	9.9%
Elliott	6.6%	32.1%	7.4%
Owsley	5.4%	46.6%	4.7%
Bath	8.0%	25.7%	5.2%
Nicholas	9.1%	22.1%	3.8%
Lewis	5.6%	28.1%	8.3%
Cumberland	5.1%	28.1%	8.9%
Metcalfe	7.6%	24.1%	4.6%
Hart	7.5%	25.3%	4.5%
Bracken	8.7%	17.4%	4.0%
Owen	9.1%	19.0%	2.7%
Fleming	8.5%	22.1%	2.9%
Morgan	4.3%	36.3%	5.2%



Consequently, our method combines the two scales and identifies a county as vulnerable if it ranks high on one scale and at least average on the other.

Our analysis shows that the 15 counties most vulnerable to a large decrease in the burley quota are (in alphabetical order): Bath, Bracken, Cumberland, Elliott, Fleming, Green, Hart, Lewis, Metcalfe, Monroe, Morgan, Nicholas, Owen, Owsley, and Robertson. Nine of these counties were identified in the 1994 study.

Figure 1 shows the relationship between county distress and tobacco dependence. Each point in the figure represents a county. A high positive number on either scale indicates that the county is *relatively* more distressed or tobacco-dependent when compared to all Kentucky counties. The figure shows

that Robertson County is our most tobacco dependent county but its distress score is about average. In contrast, Monroe County is Kentucky's most distressed county using our definition, but its tobacco dependence is just above average.

Table 1 shows the value of tobacco, the poverty rate, and the unemployment rate for the 15 counties most vulnerable to a large decline in the burley quota.

These numbers illustrate the extent to which these counties are dependent on tobacco as a source of income and are already in distress as evidenced by high poverty and unemployment rates.

Conclusions

What can be done? Since these counties tend to be clustered in the south central and northeastern parts of the state (see map), regional economic development initiatives offer the best hope. We discuss the virtues of regional rural development approaches in a Center report published in 1995.⁹ In it, we point out that collaborative multi-community approaches offer a bevy of benefits not otherwise available. In short, the future of Kentucky's tobacco-dependent communities rests with their ability to embrace the notion of collaboration and to resist the temptation of parochialism. ✍

Notes

¹ Michael T. Childress, *The Future of Burley Tobacco: Potential Outcomes, Points of Leverage and Policy Recommendations* (Frankfort, KY: Kentucky Long-Term Policy Research Center, 1994): 35.

² *Kentucky Agricultural Statistics, 1998-1999* (Louisville, KY: Kentucky Agricultural Statistics Service, 1999): 23, 33. We multiplied the average value per pound, \$1.903, times the 1998 production estimates for burley tobacco to estimate the value of burley production for the county.

³ *Kentucky Deskbook of Economic Statistics, 1999* (Frankfort, KY: Kentucky Cabinet for Economic Development, 1999): 46-9. The total personal income data are for 1997 and were originally produced by the U.S. Bureau of Economic Analysis, *REIS Regional Economic Information System, 1969-1997*, CD-ROM released May 1999.

⁴ This is an unweighted average. The average for the state (i.e., weighted average) is actually 1 percent. It is lower because the counties with the largest total personal income tend to grow little tobacco (e.g., Jefferson).

⁵ U.S. Department of Commerce, Bureau of the Census, *County Estimates for Persons of All Ages in Poverty for Kentucky: 1995*, revised February 1999. The data are the percentage in poverty in 1995.

⁶ The unemployment rates are the preliminary estimates for November 1999. These data were obtained from the Kentucky Department for Employment Services web site at <http://www.des.state.ky.us/agencies/wforce/des/lmi/lfd/clf/nov99p.htm>. Accessed on 3 Feb. 2000. We did not account for the unemployment rate in our 1994 analysis.

⁷ The (unweighted) average for counties is 21.2 percent.

⁸ The poverty rate and the unemployment rate for each county is converted to a z-score and then combined into a single index by weighting each z-score by 0.5. The z-score is equal to the county value minus the average of all counties which is then divided by the standard deviation. The statistic allows one to gauge the position of any one county relative to the other counties. The poverty rate and unemployment rate are correlated at 0.41.

⁹ Michal Smith-Mello, *Reclaiming Community, Reckoning with Change* (Frankfort, KY: Kentucky Long-Term Policy Research Center, 1995): 46.

Wanted: More Undergraduates, Lots More

By George Graves

Perhaps you've seen or heard about the numbers: 60,000 more Kentucky college and university students by the year 2014, 80,000 more by 2020. Big numbers. Very big numbers—especially for a small, slowly growing state that has fewer than 160,600 undergraduates now in public colleges and universities. Articles and columns in newspapers routinely cite these figures. So do the governor and Kentucky's top postsecondary education officials. What do they mean? Where did they come from?

The Kentucky Postsecondary Education Improvement Act of 1997, known as House Bill 1, says, among many other things, that by 2020, the Commonwealth will deliver "its educational services to citizens in quantities . . . comparable to the national average." What might that quantity be in 2020?

The Kentucky Council on Postsecondary Education asked the RAND Corporation, a Santa Monica, California, research company that has done similar studies elsewhere. Using RAND's estimate, the Council has projected that by 2020 the total will be in the neighborhood of 240,600 undergraduate students.

RAND has developed a model based on various data, trends, and assumptions that produced an estimate of the increase in undergraduates required to reach the goal in the reform legislation. That goal has struck some as modest because it is the national average—and no more—for college-going rates. But as the RAND results make clear, that average is well above where Kentucky is. It's an ambitious reach given our spotty record of high school graduates' enrolling in, staying in, and graduating from colleges and universities.

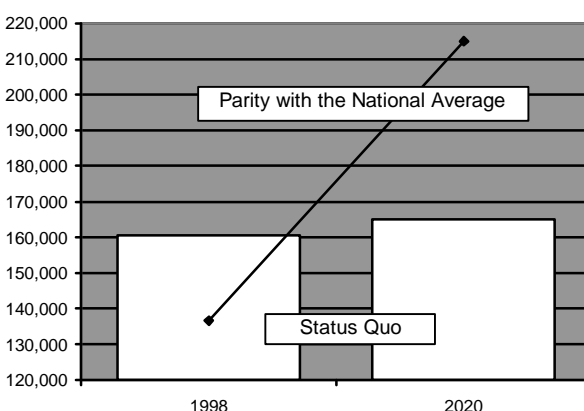
Nationally, nearly two thirds of high school graduates go on to some form of advanced education; in Kentucky, approximately half do. In the country overall, half of those who enroll graduate within five years; in Kentucky, little more than a third graduate—in six years.

If, as planned, Kentucky adds significantly to its student population, where would the growth occur? How would it be distributed among our array of institutions? Current enrollment trends suggest that initially, at least, much of it would be at Kentucky's six comprehensive universities: Eastern, Ken-

tucky State, Morehead State, Murray State, Northern, and Western. The rest would be divided among the University of Kentucky, the University of Louisville, and the community and technical colleges.

But future attendance patterns should be different. Apart from imponderables such as war or a weak economy, those patterns will reflect any changes in policy intended to guide students—depending on their desires, needs, and preparation—to one type of institution or another. What will influence students' decisions? Factors include admissions standards, tuition and fees, financial aid, convenience, programs of study, qualifications needed for intended occupations, and other considerations.

Two Scenarios for Projected Undergraduate Enrollment at Kentucky Postsecondary Institutions



Source: Council on Postsecondary Education and RAND Corp.

Chief among those other factors is an institution's mission. Missions are becoming more clearly defined and focused as postsecondary education is reformed. Recent surges in applications notwithstanding, UK and UofL might add relatively few undergraduates as they strive to become top research universities and emphasize graduate studies. The community and technical colleges eventually are expected to grow rapidly—they are the gateways for, among others, students who are not as well prepared or as affluent as the likeliest prospects for advanced education.

By developing distinctive programs to differentiate themselves from one another, the comprehensive universities could draw more students beyond their immediate regions and even from outside the Commonwealth.

A portion of the increase in students probably will go to the independent colleges and universities sprinkled all over Kentucky. The amount will depend, in large part, on those institutions' unused capacity and any additional incentives—such as financial aid, public or private—that draw students to them.

Where would all of these additional students come from? Many could—and must—come from underserved populations. They include youths who have decided, often incorrectly, that college is not an option for them; working parents, especially those in rural areas, who do not have the time or inclination to commute to colleges or universities; and adults, working or not, who must first improve their reading and writing skills.

The Kentucky Commonwealth Virtual University, which has begun offering courses over the Internet, provides what it

EDUCATION PAYS!

Unemployment Rate		Median Earnings
1.3%	Professional	\$72,700
1.4%	Doctorate	\$62,400
1.6%	Master's	\$50,000
1.9%	Bachelor's	\$40,100
2.5%	Associate's	\$31,700
3.2%	Some College	\$30,400
4.0%	High School	\$26,000
4.1%	Less than High School	\$19,700

Source: Council on Postsecondary Education

calls “anywhere, any time” education to anyone who can get to a computer—at home, in public libraries, in workplaces, or even National Guard armories.

As jobholders and job seekers increasingly realize, the best hope for staying employed or finding a more satisfying position is lifelong education—going back to college from time to time to acquire needed skills or earn required credentials. “Educational attainment largely determines income . . . income largely determines living standards,” concludes a recent issue of *Postsecondary Education Opportunity*, published by the Center for the Study of Opportunity in Higher Education. Income for both individuals and households rises significantly, and sometimes dramatically, as levels of education rise. High school graduates, for example, typically are paid half of what four-year college graduates make. Those who fail to complete high school should expect notably less than those who do.

Enrolling more students is not the only way to raise the number in colleges and universities. Persuading more to stay—and to earn diplomas, certificates, and degrees—is another and at least as important. With additional encouragement and support, students might spend fewer years than many typically do now to obtain their credentials. Again, the institutions can promote these happy results by making education more accessible and convenient. Adult students, in particular, might appreciate courses offered electronically by KCVU (television, the Internet).

Increasing enrollment dramatically will cost money—lots of money, but perhaps no more than would be expected. However, changes in the funding approach, including greater stress on cooperation among institutions and on using dollars, buildings, technology—and faculty—ever more wisely, are intended to promote more efficiency and effectiveness.

Sharply increasing the number and proportion of Kentuckians who go to college—whether young people attending full time or adults going part time, whether in the classroom or over the Net—is a very big job. But it must be accomplished if reform goals are to be met and the Commonwealth is to successfully achieve a higher standard of living for its citizens. }

Editor:

I am writing in response to the article by University of Kentucky political science professor, Dr. Ernest J. Yanarella, entitled “Rethinking Kentucky: a New Vision for the Coming Millennium.”

Dr. Yanarella states in paragraph 5 of the article: “Before it is too late, the rules of the planning game and the vision of local leaders must be altered to re-imagine the shape of the post-millennial city and to institute local and regional practices for bringing into being those new visions. Governor Patton’s Renaissance Kentucky initiative (pooling state resources from many administrative agencies on a few selected small cities) showed great promise, but its potential now seems stillborn.”

Governor Paul Patton announced the creation of Renaissance Kentucky, an initiative to assist communities with downtown revitalization efforts, in August 1996. This initiative is designed to bring together communities and resources necessary to revitalize and restore Kentucky’s downtowns. To accomplish Renaissance Kentucky goals, an alliance of four state agencies and a private entity dedicated to assisting Kentucky’s communities was formed. This alliance includes Kentucky Housing Corporation as lead agency, Kentucky Department for Local Government, Kentucky Heritage Council, Kentucky League of Cities and the Kentucky Transportation Cabinet. To ensure maximum support, Governor Patton has appointed a Renaissance Kentucky representative within each applicable state agency. It is the responsibility of the Renaissance representatives to provide technical assistance and identify resources for communities at the request of the Alliance. In addition to state government representatives, seven other private and federal entities have appointed Renaissance Kentucky liaisons within their agencies to provide technical assistance and funding resources when available.

Governor Patton’s 1998-2000 budget included an allocation of \$3 million for Renaissance initiatives, including grants for façade, infrastructure and utility burial/relocation improvements. In his budget address on January 25, 2000, he announced that \$12 million has been set aside for Renaissance Kentucky in the proposed state budget for the next biennium. Renaissance funding sources include \$10 million of TEA 21 transportation funds earmarked by Governor Patton for enhancement projects.

Opportunities for communities to apply for Renaissance Kentucky designation are provided once every two years. To date, 41 communities across Kentucky have applied for and received Renaissance Kentucky designation. The criteria to become a Renaissance community is composed of 12 factors including defined downtown; occupancy; vision, goals and objectives; community organization and management; historic integrity and preservation; appearance; financial support; safety; leadership initiatives; market study/implementation plan; development barriers/impediments; and growth measures. The cities do their own planning and dreaming, Renaissance Kentucky helps them realize the goals they have created.

As chairman of the Renaissance Kentucky Alliance, I am enthusiastic and take pride in our progress thus far. Renaissance Kentucky is a dynamic process and one that will impact our state for years to come, giving the Commonwealth a renewed rich heritage that restores individual pride in our communities and revitalizes our downtowns with new and vibrant businesses, jobs, desirable housing, cultural and educational opportunities and economic strength.

Thank you for this opportunity to respond to Professor Yanarella’s article. If I can provide further information about Renaissance Kentucky, please call me at 502-564-4982.

*F. Lynn Luallen
Chief Executive Officer
Kentucky Housing Corporation*

Science & Technology Plan for Kentucky Advanced

Introduction

The science and technology strategies and actions set forth here build on what Kentucky has already accomplished and break new ground with innovative approaches, concepts, and ideas. The strategy confronts and seizes upon the opportunities presented by change. While it presents incredible challenges, a world characterized by instability and chaos also provides a basis for dynamic progress. As the pace of change accelerates, it unleashes forces that can lead to innovation and uncover new opportunities that can be exploited for progress.

For places like Kentucky with unrealized potential, this situation, if properly managed, offers exciting possibilities. But these opportunities can be realized only if Kentucky moves quickly and boldly to develop an innovation-driven economy capable of creating the ideas, products, high-paying jobs and enterprises necessary for success in the new millennium. In a world increasingly running on *Internet-time*, timid and piecemeal actions will not work.

The New Forces

Change, knowledge, innovation, and speed are the primary forces that drive and shape today's world. Consequently, a successful science and technology strategy must not only respond to these forces but embrace and actually promote them.

Change is constant and unrelenting. It also has become the predominant force influencing every aspect of our lives. Economist David Birch argues that 50 percent of firms in business today will be gone and the other 50 percent will be much different five years from now. Today's high school graduate will likely go through eleven career changes, compared to the one or two career changes of the past. Only about 16 of the 100 largest companies around in 1900 are still in business at the close of the century. The life span of products is becoming shorter and shorter, as illustrated by the evolution of the personal computer over the past decade. Many jobs on which Kentuckians now depend will be dramatically altered or gone completely in the years ahead. In short, jobs will change, careers will change, firms will change. Consequently, Kentucky must embrace a culture of change. It must become innovative and entrepreneurial if it is to be a catalyst and facilitator that enables people, firms, and communities to adjust to and manage such relentless change.

In the future there will be two kinds of economies: smart

and dead. Today ideas and *knowledge* are the primary tools of production. The real assets of most successful organizations are knowledge resources and people, rather than equipment, buildings, or other property. John Kao, author and former Harvard Business School professor, concludes, "In today's new economy ... the minds of gifted people are what truly distinguishes one organization from another." Knowledge is creating the dynamic companies and jobs that Kentucky must grow if it is going to develop a competitive economy.

To fully grasp the importance of knowledge to the bottom line one only need observe the market capitalization value of many Internet companies and other innovative firms, which are being valued not on tangible assets but on ideas and people. Kao explains that the company Dreamworks was originally valued at about \$2.7 billion. "Not bad for a start-up with rented offices, leases on the copying machines, and little if anything in the way of traditional tangible assets."

If it's not broke ... fix it anyway has become the mantra of business. In today's economy a company's only real competitive advantage is to innovate relentlessly and continually. Michio Kaku, noted physicist writing in the book *Visions*, states that, "In the past decade, more scientific knowledge has been created than in all human history." This knowledge is

driving high-speed progress and innovation in virtually every area of human endeavor.

Speed has become as important as price in defining competitive advantage. James Champy observes in *Reengineering Management* that Sony Corporation produces four new products a day. The life of an American industrial product, once measured in decades and then in years, is now often measured in months. This is the competitive environment in which companies, organizations, and Kentucky find themselves.

The speed at which technology is changing is fueling this race to introduce new products into the marketplace. Michio Kaku notes that, "Computer power is doubling every 18 months ... The Internet is doubling every year ... In fact if we go back 80 years, computer power has increased by a factor of 1 trillion."

The Entrepreneurial Economy

The interplay of these new forces coupled with other economic changes (e.g., globalization) is leading to the emergence of an age where entrepreneurship, defined as *the unconstrained pursuit of new ideas resulting in innovative creation*, is the key integrating element for economic growth and development. Kentucky needs more firms—innovative, growth-oriented enterprises founded on



Editor's Note: This article summarizes a strategy developed by the Kentucky Science and Technology Council for the Governor's Office. It forms the basis of New Economy legislation.

the ideas, creativity and know-how of Kentuckians, companies with real roots in the Commonwealth and the communities in which they reside.

This strategy involves a broad range of factors central to building such an economy, including:

- ⇒ Schools that infuse innovation throughout the learning enterprise, stress science and mathematics, help create an environment in which entrepreneurship is seen as a viable employment option and an alternative to simply “getting a job”;
- ⇒ Universities that promote the development of new knowledge, ideas, products and firms;
- ⇒ A range of capital resources required to support new ideas and start-up and growing enterprises;
- ⇒ Public policies that encourage rather than discourage entrepreneurship, innovation, risk-taking and business expansion;
- ⇒ The scientific and technological capacity to support the start-up and growth of innovative companies;
- ⇒ Communities with dynamic local and regional support systems; and
- ⇒ A culture that supports and rewards high-speed innovation and entrepreneurship.

Kentucky’s Current Situation and Future Potential

Research on Kentucky finds a state burdened by relatively low-wage industries and jobs and lacking dynamic growth sectors. Moreover, the Commonwealth has yet to create sufficient knowledge, technological and capital assets needed for real and sustained economic development in the knowledge economy. Kentucky has several underlying weaknesses that, if not addressed quickly, will create significant problems for the state’s economy over the long term. They include:

- ⇒ An inadequately prepared knowledge workforce;
- ⇒ An insufficiently developed entrepreneurial culture and capital base;
- ⇒ A failure to maximize its intellectual capital resources in concert with industry; and
- ⇒ A manufacturing base not taking full advantage of technology for competitiveness.

Independent analyses undertaken in the development of this strategy concluded that:

- ⇒ Closer ties and relationships are needed between emerging industries in the state and research and development emphases being considered by the state’s public universities;
- ⇒ To build a stronger entrepreneurial environment, Kentucky will require increased partnerships, more innovation at all

levels, a greater focus on growth from “within” and appropriate state-supported organizations and efforts;

⇒ The state’s system for delivering assistance to small and medium-size manufacturing firms suffers from a multiplicity of service groups and organizations;

⇒ Manufacturing modernization assistance can help build a critical mass of new industries for the state if this assistance is broadened to product development as well as process improvement;

⇒ Technology incubators and related programs in Kentucky are in short supply; and

⇒ No clear strategic focus on science and technology exists within state government.

The Kentucky Science and Technology Strategy is driven by a single overriding goal: *To create an innovation-driven entrepreneurial economy that makes Kentucky a leader in the development of knowledge and its applications to people, firms and products.* Four key strategies will drive Kentucky’s Science

and Technology Strategy toward achieving its goal.

⇒ *Enterprise Development:* Create and grow innovation-driven Kentucky enterprises through aggressive support for risk capital and commercialization of research.

⇒ *Manufacturing Modernization:* Modernize existing manufacturers in Kentucky.

⇒ *Technological Infrastructure:* Build the technological infrastructure (i.e., Kentucky know-how) that is essential to ensuring a competitive Kentucky economy.

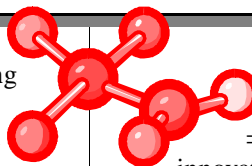
⇒ *People:* Ensure that Kentucky education systems prepare highly skilled, knowledgeable graduates (including teachers) with the necessary mathematics and science capabilities for successfully maneuvering in the 21st century knowledge economy.

Strategic Actions

Ten actions are recommended in the four areas of enterprise development, manufacturing modernization, technological infrastructure, and people.

1. Authorize a limited portion of state pension funds for investing in business ventures—up to 2 percent of pension fund assets.
2. Create Research and Development (R&D) Vouchers redeemable by small and medium-size firms at Kentucky universities.
3. Establish the Kentucky Commercialization Fund to support university research prior to garnering a corporate sponsor.
4. Conduct a review of Kentucky policies and regulations to identify barriers, constraints, etc., that may impede the commercialization of knowledge or technology and the start-up and growth of innovative Kentucky companies.

The Kentucky Science and Technology Strategy is driven by a single overriding goal: to create an innovation-driven, entrepreneurial economy that makes Kentucky a leader in the development of knowledge and its applications to people, firms and products.



5. Establish a statewide manufacturing modernization system.
6. Establish Regional Technology Service Corporations that serve small and medium-size firms in largely rural areas of Kentucky.
7. Create the Kentucky Science and Engineering Foundation to further advance Kentucky's R&D capacity.
8. Establish the Strategic Technology Capacity Initiative in recruiting technology-based companies.
9. Increase state investments in targeted higher education trust funds that advance Kentucky's scientific and technological competitiveness.
10. Pay premium compensation to all P-12 teachers of mathematics and science and related resource teachers who hold, at a minimum, a degree in math or a science discipline.

Conclusion

Kentucky is at a crossroads. It can continue to build its economy primarily on assembly-line manufacturing and old-line industries, or it can recognize its many assets and aggressively move forward to take advantage of them and create its own knowledge and companies. It can better position itself for the knowledge-driven economy.

Kentucky's Science and Technology Strategy was designed for widespread ownership. It requires collaboration to be successfully implemented. It focuses on innovation, entrepreneurship, knowledge and R&D to move Kentucky toward higher-value products and processes. A technology management portfolio approach has been proposed whereby the state's funding commitments are seen as investments, not grants. Recognition has been given to differences and similarities in rural and urban Kentucky.

Finally, the *Strategy* proposes a reasoned set of Actions but cautions that it will take long-term commitment and results will be seen best over many years. This is a private and public strategy and requires both types of investments for its successful implementation.

For more information contact: Kentucky Science and Technology Corporation, P.O. Box 1049, Lexington, Kentucky 40588-1049. Phone: 606-233-3502, extension 221; fax: 606-259-0986; email: kstc@kstc.org. Look for online discussions and updates of *Kentucky's Science and Technology Strategy* at www.kstc.org.

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Scanning Kentucky

Today's Children, Tomorrow's Workforce

"The child is father of the man ..."
William Wordsworth

States in the South must do a better job of caring for and educating children if they want a competitive workforce in the future, concludes a report on the future of the South produced by a Southern Growth Policies Board commission headed by former Kentucky governor Martha Layne Collins. A well-educated workforce will be vital to future economic growth, the report observes. Yet in southern states, it concludes, "Our system of early childhood education is clearly failing our children," because many southern children are not prepared for school and by the fourth grade are falling below a basic reading level.

To overcome this failing, the report urges, southern states need not only to provide universal preschool programs but to do a better job of ensuring health care and social services for young children and the parents on whom they rely. Otherwise, as reported in a *Courier-Journal* article on the Commission's findings, "We face a serious risk of a growing gap between the 'haves' and 'have-nots.'"



Potential Implications for Kentucky. The conclusions of this Commission underscore the critical role that early childhood development plays in the well-being of society at large. As Gov. Patton has emphasized in his proposals, healthy children who have access to opportunities to learn and grow become productive, contributing citizens. Thus, all of us benefit. Given the disproportionate poverty and the well-documented gaps between rich and poor in Kentucky, the stakes are especially high here. Consequently, we must focus more of our energy on building the long-range economic health we have long sought. As this Southern Growth Policies Board entity concludes, it begins with making it possible for every child to realize his or her potential.

The Looming Cost of Retiring Boomers

When U.S. Baby Boomers start retiring in the next decade, a demographic tsunami will overwhelm Social Security, Medicare, and Medicaid, according to Robert Bixby, director of the Concord Coalition, a think tank that focuses on the federal government's fiscal policies.

In a recent article in *The Futurist* magazine, Bixby warns that the government needs to reevaluate its assumptions about the costs of these entitlement programs before the wave hits. Age-related entitlement programs accounted for 44 percent of the U.S. government budget in 1998. Growth in these programs—Social Security, Medicare, Medicaid, and military and civilian pensions—has been accelerating since 1962, when entitlement spending claimed just 32 percent of federal spending. According to Bixby, entitlement spending will constitute about 73 percent of the budget by 2009, just as large numbers of taxpaying Boomers are leaving the workforce and claiming benefits. Bixby also contends that Social Security and Medicare trustees have made overly optimistic economic and demographic assumptions about the future solvency of

their programs. He offers five warnings: health care costs may soar, people may live to draw benefits longer, productivity will decline, low fertility may reduce the workforce, and reduced immigration could trim the worker base.

In a related *Courier-Journal* article, Ron Crouch, Director of the Kentucky Data Center, warns that a rapidly expanding elderly population followed by a much smaller younger generation could pose many health care challenges for Kentuckians in the new millennium. This unprecedented demographic shift means there will be less money to pay for aging Boomers' needs, as well as fewer caregivers due to smaller family sizes and more women—the traditional caregivers—in the workforce.

The portion of Kentuckians in the 65 and older age group is projected to increase 32.5 percent between 1990 and 2020, while those age 17 and younger are expected to decline 17.3 percent. Though the effects of this demographic shift will be felt first in 2010 when Boomers begin retiring, they will be felt most sharply around 2030 as Boomers enter their 80s and health care needs and reciprocal costs escalate to their highest levels.

Potential Implications for Kentucky: These prognosticators join a chorus of doomsayers who paint a potentially bleak future scenario. While demographics clearly give rise to such predictions, a number of factors are likely to mitigate their overall impact. They include record levels of education and wealth among Baby Boomers, remarkable breakthroughs in health care that are not only increasing longevity but also

improving quality of life and functional capacity, and the increased likelihood that many will stay in the labor force longer than anticipated. Some surveys find that many Boomers plan to do just that. Moreover, declining birthrates, the product of low fertility rates, may offset society's dependency burden. Additionally, immigration policies, which have softened in the face of widespread U.S. labor shortages, can be adjusted to accommodate national needs. Nevertheless, health care costs will almost certainly rise, and increased longevity will likely increase the time that elders draw benefits.

Kentucky's older population, which is disproportionately poor and expected to be larger than in most states, is likely to create many unanticipated fiscal demands at the state, as well as the federal level. In addition to the unresolved dilemma of how to pay for and provide access to the health care elders will need, society will be faced with the challenge of developing new modes of housing, transportation, services, and care, and creating flexible methods of paying for them.

Because these trends are almost certain to have a significant fiscal and social impact, the Kentucky Long-Term Policy Research Center has embarked on a joint study with the University of Kentucky Sanders-Brown Center on Aging that should provide a timely body of information about the likely needs of current and future retirees. A report on those findings is planned for this year.

Ambitious Postsecondary Goals Set

The Council on Postsecondary Education has set some ambitious goals for the next four years. Kentucky needs 11,000 more students in the state's colleges and universities, and those schools need to do more to make sure that students stay and graduate. Council President Gordon Davies presented the work plan to legislators, education policymakers, and Governor Paul Patton, as part of a progress report on Kentucky's higher education reform efforts during a meeting of the Strategic Committee on Postsecondary Education, a legislative advisory group for higher education.

The council's *Action Agenda for 1999-2004* sets specific targets for enrollment, retention, and graduation rates for each public university and the two-year college system. The council expects nearly 9,000 students to enter college by 2002 and an additional 2,000 by 2004 with the majority of growth at the state's two-year schools. Achieving these goals would, Davies said, put Kentucky on the path to meeting the national average for college attendance by high school seniors, which is 67 percent compared to about 45 percent here.

Potential Implications for Kentucky. As George Graves writes in this issue of *Foresight*, to achieve parity with the

nation's college-going rate, more and more Kentuckians—traditional and nontraditional students—will have to pursue a postsecondary education. To recruit more traditional students, it will be necessary to better address the elementary and secondary education needs of poor and low-income students who are far less likely to attend college and, recent studies show, far less likely to have the necessary academic preparation for college. Also, in our campaign to instill broader understanding of just how much “education pays,” the enormous benefits of parental examples should not be overlooked. After all, what better example can be set for a child than to witness firsthand the fruits of his or her parents' hard work for an education?



Remedies for Kentucky's Income Gulf

Kentucky is among 10 states with the largest income gap between the richest and poorest families, *The Lexington Herald-Leader* recently reported. The richest Kentucky families earn more than 11 times what the poorest families earn, according to a new national study. And inequality in Kentucky has increased over the past 20 years, according to a state-by-state analysis of income trends by the Center on Budget and Policy Priorities and the Economic Policy Institute in Washington, D.C. If officials want to change these circumstances, these researchers conclude, they will have to consider increasing the minimum wage, providing more support services to low-income families like transportation and child care, and look at progressive tax reforms that alleviate the tax burden on poor families.

Potential Implications for Kentucky. Yet another study points to the need to alleviate the tax burden that Kentucky's poorest families shoulder, here as a means of diminishing the gap between rich and poor. Moreover, this study recommends that more public dollars be targeted to services for early childhood development to ensure that poor children thrive and reach their full potential.

Regardless of how we change, pronounced income inequality, which numerous studies have found evidence of in Kentucky, poses the potential for significant long-term problems. Prominent among them are the perpetuation of a large unskilled labor force and an extensive population of impoverished people, the very circumstances that have impeded economic progress in the Commonwealth for decades.

Moreover, without state and national attention to a problem that has remained virtually undiminished by the health of the economy, we can expect the costly burden of tomorrow's retirees to be shouldered by an ill-prepared, poorly trained labor force. In time, our inattention to current roadblocks to economic mobility could create many unexpected losers.

Welfare Reform Creating Losers and Winners

Welfare reform may be working too well, a recent study by the Center on Budget and Policy Priorities finds. More than 1 million single mothers who have found jobs and moved off welfare are having difficulty paying bills and putting food on the table, partly because they're not getting government help to which they are entitled, including food stamps and medical care. That problem is spotlighted in a new study of welfare reform, released on the third anniversary of the national reform effort and reported in the *Lexington Herald-Leader*.

The study by the Washington-based research group, which focuses on the interests of the poor, shows that many former welfare recipients are indeed working and enjoying higher incomes as a result of welfare reform. But among the poorest 20 percent of female-headed households with children—a group that comprises 2 million families and 6 million people—economic independence remains elusive. In that group, income fell by an average of \$580 per family between 1995 and 1997, plunging them deeper into poverty as states began implementing welfare reforms. In many states, some mothers who are collecting paychecks instead of cash welfare benefits either have not applied or don't know to apply for benefits they may still be eligible for.

Potential Implications for Kentucky. Ultimately, the success of welfare reform will hinge on whether single parents achieve economic independence. Without health care benefits, affordable child care, and, in some cases, food stamps to

supplement low incomes, the odds are against some former recipients. As recommended in our recent report, *What Next for Kentucky Health Care?*, every effort should be made to ensure that Medicaid-eligible workers get the benefits to which they are entitled. Over the long-term, these benefits will help foster the independence welfare reform sought to encourage.

Cost Cutting Blamed for Health Industry Losses

Health care industry analysts consider companies such as Louisville-based Vencor victims of an overzealous attempt by the government to save money on Medicare payments, the *Lexington Herald-Leader* reports. The 1997 Balanced Budget Act, which reduced Medicare payments to hospitals and nursing homes, was intended to save taxpayers \$110 billion over five years. But the savings could be closer to \$200 billion, according to the Congressional Budget Office. Under the new system, the government pays nursing homes and home health-care agencies a fixed fee to care for Medicare patients rather than reimbursing them for costs.

Potential Implications for Kentucky. Along with once-thriving firms like Vencor, many hospitals, particularly those in rural areas, have become vulnerable under the fee system imposed by the 1997 Balanced Budget Act. From doctors to hospitals, providers will likely continue to incur losses of revenue as the government and private insurers seek greater control over health care costs. *GL*

FORESIGHT

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